

Southern California Wildfires

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Outreach Track: Communications and Air Pollution Emergencies

February 24, 2004

Nero fiddled while Rome burned!

Between October 21rd and October 31st 2003 nearly 750,000 acres of Southern California burned.

Nearly 18 million people were exposed to dangerous levels of fine particulates.

Don't blame the SCAQMD for not being musical.

Communicating During a Wildfire Emergency

- Historical perspective of wildfires and smoke impacts in Southern California
- Reporting conflicting data
- Impacts of the health message
- Dealing with the media
- The firestorm as viewed through the data
- Learning from our mistakes

Wildfires: Historical Perspective

- Majority of wildfires occur during Santa Ana “high wind” conditions in the fall
- Burn corridors well established
- Near burn fumigation occurs but the main smoke impact from the elevated plume is offshore
- Occasionally burns will fumigate the basin through sea breeze recirculation

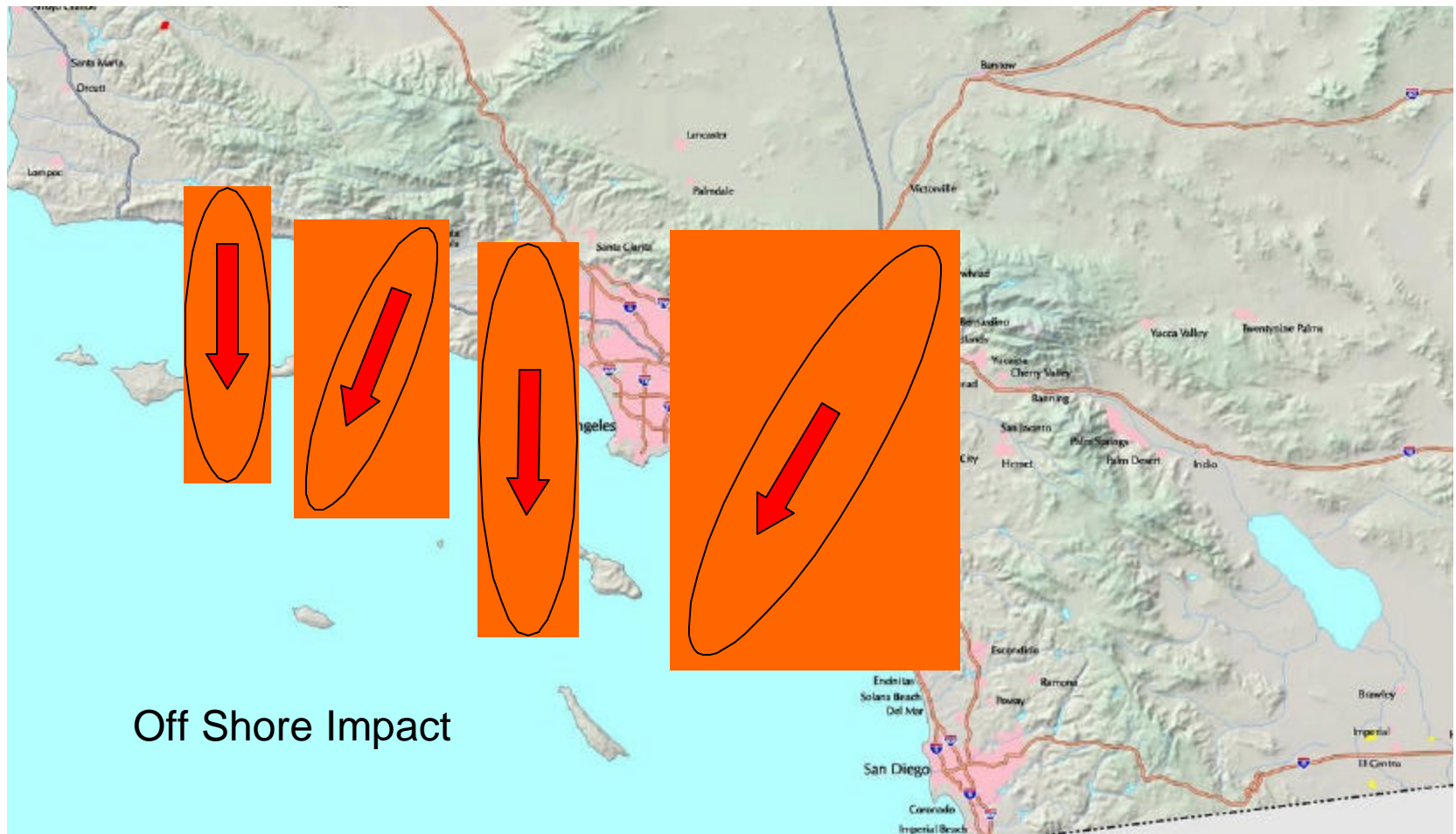
Primary Burn Areas



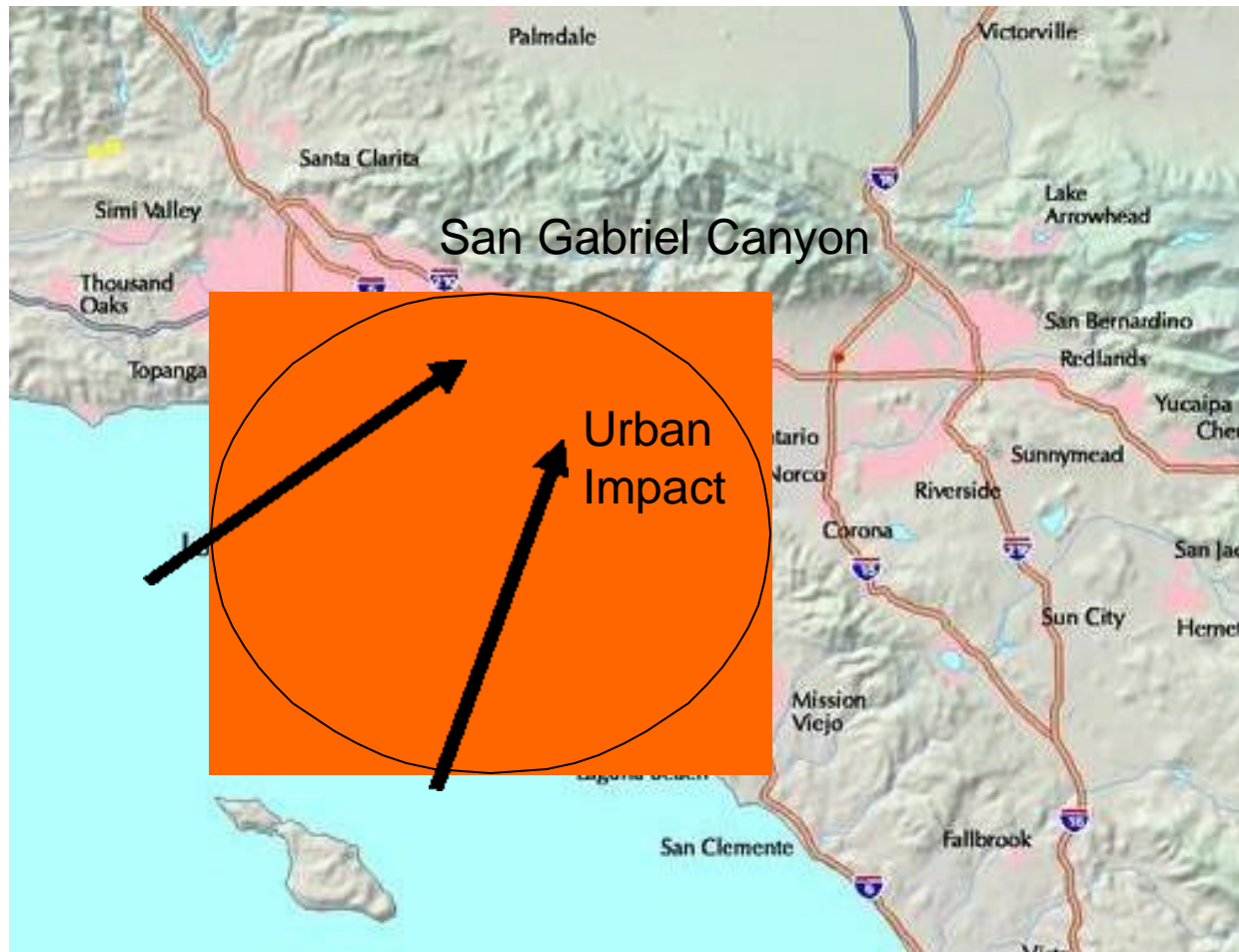
Santa Ana Wind Flow



Smoke Transport



Sea Breeze Fumigation



October 2003 Wildfire

- The burns started during a weak sea breeze (21st and 24th)
- Conditions intensified under Santa Ana high winds (25th through 27th)
- Smoke plumes reversed directions as the sea breeze returns (28th and 29th)
- Limited areas impacted by smoke after the 30th

Paths of the Primary Fires



SCAQMD's Air Quality Communications Machine

- Website and automated telephone voice recording updated hourly from telemetry
- 24-hour operator available
 - > air quality specialists
 - > health effect officer
 - > meteorology
- Press Office outlet to media
- Air quality forecast and same-day updates issued via e-mail, fax, website posting, AIRNOW and telemetry computer

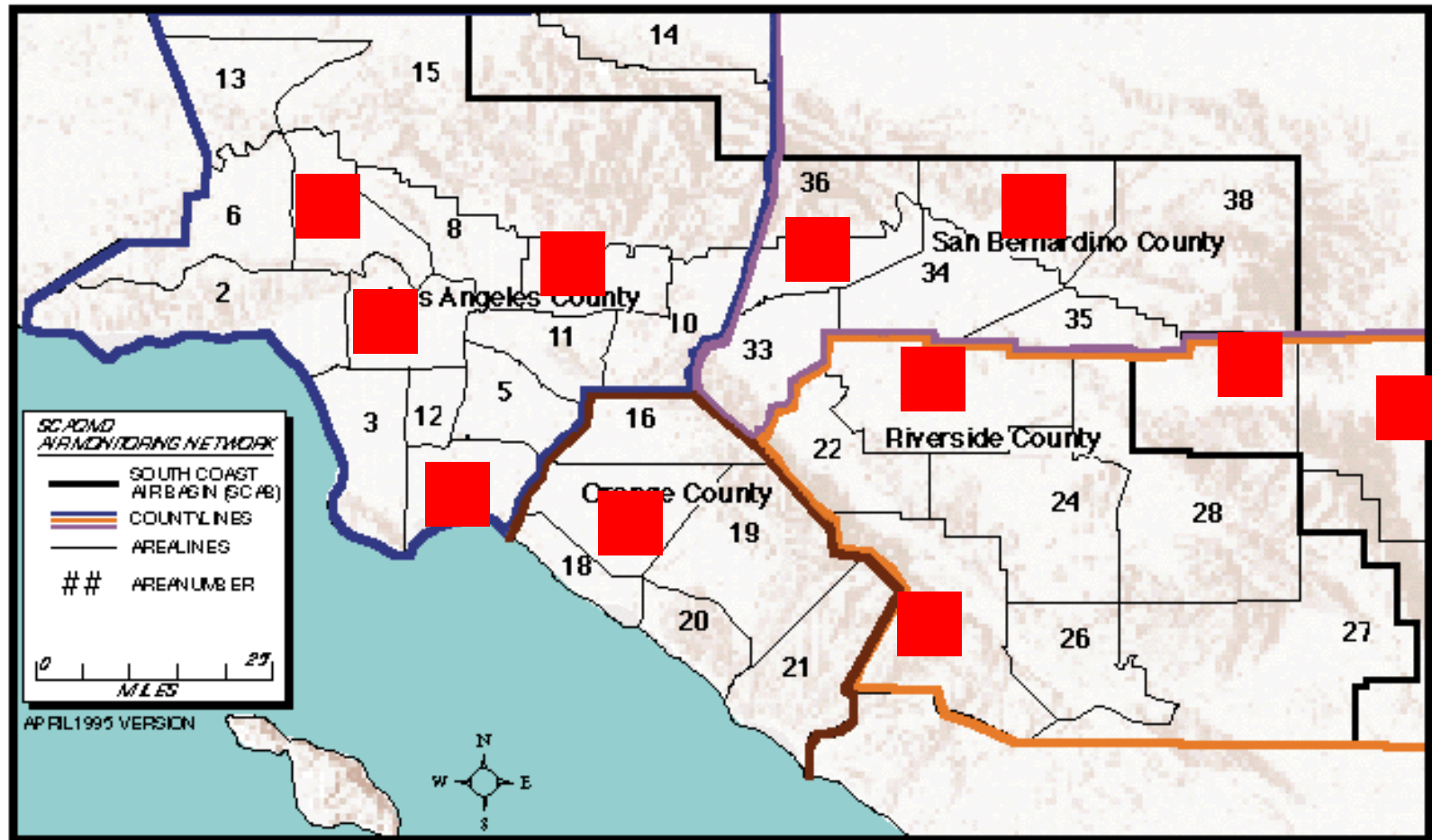
Continuous Particulate Monitoring



The Chinks in the Armor

- Automated information systems report only data monitored at that station
 - > Ozone reporting is comprehensive
 - > No mechanism to interpolate real-time PM10 or PM2.5
- Forecast and updates issued to schools, and public include ozone, PM10 & PM2.5 for all areas through the AQI
- Areas having no PM monitoring report the AQI derived from gaseous pollutants

Monitoring Source-Receptor Areas



■ - Particulate Continuous Monitoring Station

The Consequence


- During a wildfire neighboring areas can have extreme differences in reported AQI
- Forecasted or updated AQI in areas having no real-time PM monitoring often conflicts with the automated report
- Many schools use the automated reports to confirm the forecast and determine outdoor activity schedules
- Credibility gap opens

AIRNet - Microsoft Internet Explorer provided by South Coast A.Q.M.D.

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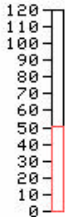
Address <http://airnet.aqmd.gov/> Go



Metropolitan Riverside Area 1 Air Monitoring Subregion

It's 10:44 AM GMT on Saturday, January 24, 2004 in Southern California. Currently, the temperature at Metropolitan Riverside Area 1 is 51 degrees , wind is out of West at 1 MPH. Thus far, today's low was 40 degrees and the high was 51 degrees.

Degrees F



[Thus far, today's Air Quality](#)

Currently: O3 - 5 AQI, NO2 - 28 AQI, CO - 17 AQI, PM10 - 81 AQI
Highs: O3 - 5 AQI, NO2 - 28 AQI, CO - 18 AQI, PM10 - 86 AQI

[Yesterday's Air Quality](#)

Highs: O3 - 23 AQI, NO2 - 28 AQI, CO - 8 AQI, PM10 - 85 AQI

[Agenda Tracking](#) [Program Websites](#) [Support & Forms](#) [Publications & Manuals](#) [Employee Timecard](#)

Local intranet

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Central San Bernardino Valley 1 Air Monitoring Subregion

It's 10:41 AM GMT on Saturday, January 24, 2004 in Southern California. Currently, the temperature at Central San Bernardino Valley 1 is 50 degrees , wind is out of North-northwest at 2 MPH. Thus far, today's low was 43 degrees and the high was 50 degrees.

Degrees F



[Thus far, today's Air Quality](#)

Currently: O3 - 5 AQI, NO2 - 38 AQI
Highs: O3 - 5 AQI, NO2 - 39 AQI

[Yesterday's Air Quality](#)

Highs: O3 - 28 AQI, NO2 - 35 AQI

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Local intranet

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East San Bernardino Valley Air Monitoring Subregion

It's 10:46 AM GMT on Saturday, January 24, 2004 in Southern California. Currently, no temperature information is available , wind is out of East-northeast at 1 MPH.

[Thus far, today's Air Quality](#)

Currently: O3 - 27 AQI
Highs: O3 - 27 AQI

[Yesterday's Air Quality](#)

Highs: O3 - 27 AQI

About the Pollutant Measurements

NOTE: The AQI graph for each station uses raw data taken directly from the District's telemetry system. Raw data are unvalidated and, therefore, subject to change.

Ozone (O3):	invisible, irritates and impairs breathing
Nitrogen Dioxide (NO2):	known respiratory irritant

[Agenda Tracking](#) [Program Websites](#) [Support & Forms](#) [Publications & Manuals](#) [Employee Timecard](#)

Local intranet

Translating Smoke Impacts Through the Health Message

- Health Message:
 - > Avoid outdoor activities
 - cancel outdoor school recess
 - postpone after school sports
 - wear particulate mask
 - > Stay indoors turn on air conditioner
- Common sense approach:
If you can smell the smoke and the visibility is reduced use caution

SPECIAL SMOKE ADVISORY: Valid Friday, October 24, 2003

Due to the wildfires in southern California, localized areas of smoke have occurred in the Basin. As a result, concentrations of fine particulates are expected to reach the unhealthful level in the smoke impacted areas.

All individuals are urged to exercise caution and avoid unnecessary outdoor activities in the smoke impacted areas.

Today, October 24, 2003, a PM2.5/PM10 Smoke Advisory is in effect in the following areas:

Area #	Monitoring Area	Description	Pollutant	AQI	Time
9	East San Gabriel Valley	Unhealthy-Sensitive	PM2.5/PM10	125	All Day
10	Pomona/Walnut Valley	Unhealthy-Sensitive	PM2.5/PM10	125	All Day
11	South San Gabriel Valley	Unhealthy-Sensitive	PM2.5/PM10	125	All Day
22	Norco/Corona	Unhealthy	PM2.5/PM10	155	All Day
23	Metropolitan Riverside	Unhealthy	PM2.5/PM10	155	All Day
24	Perris Valley	Unhealthy	PM2.5/PM10	155	All Day
32	Northwest San Bernardino Vly	Unhealthy	PM2.5/PM10	165	All Day
33	Southwest San Bernardino Vly	Unhealthy	PM2.5/PM10	165	All Day
34	Central San Bernardino Valley	Unhealthy	PM2.5/PM10	165	All Day
35	East San Bernardino Valley	Unhealthy	PM2.5/PM10	155	All Day
36	West San Bernardino Mtns	Unhealthy	PM2.5/PM10	170	All Day
37	Central San Bernardino Mtns	Unhealthy	PM2.5/PM10	170	All Day

Tomorrow's Forecast: Valid Saturday, October 25, 2003

Tomorrow, October 25, 2003, air quality is predicted to be GOOD to MODERATE in most areas, but air pollution levels will exceed 100 on the Air Quality Index (AQI) in the following areas:

Area #	Monitoring Area	Description	Pollutant	AQI	Time
9	East San Gabriel Valley	Unhealthy-Sensitive	PM2.5/PM10	123	All Day
10	Pomona/Walnut Valley	Unhealthy-Sensitive	PM2.5/PM10	123	All Day
22	Corona/Norco	Unhealthy	PM2.5/PM10	155	All Day
23	Metropolitan Riverside	Unhealthy	PM2.5/PM10	155	All Day
24	Perris Valley	Unhealthy	PM2.5/PM10	155	All Day
32	Northwest San Bernardino Vly	Unhealthy	PM2.5/PM10	163	All Day
33	Southwest San Bernardino Vly	Unhealthy	PM2.5/PM10	155	All Day
34	Central San Bernardino Valley	Unhealthy	PM2.5/PM10	163	All Day
36	West San Bernardino Mtns	Unhealthy	PM2.5/PM10	173	All Day
37	Central San Bernardino Mtns	Unhealthy	PM2.5/PM10	173	All Day

Communications Problems

- Phone calls by the hundreds per hour
- Angry school administrators and coaches
 - > cancel “homecoming” football games
 - > grumpy teachers (kids confined indoors)
 - > parents complaining kids were let outdoors because schools relied on automated information sources
- AIRNOW PM2.5 readings not operational

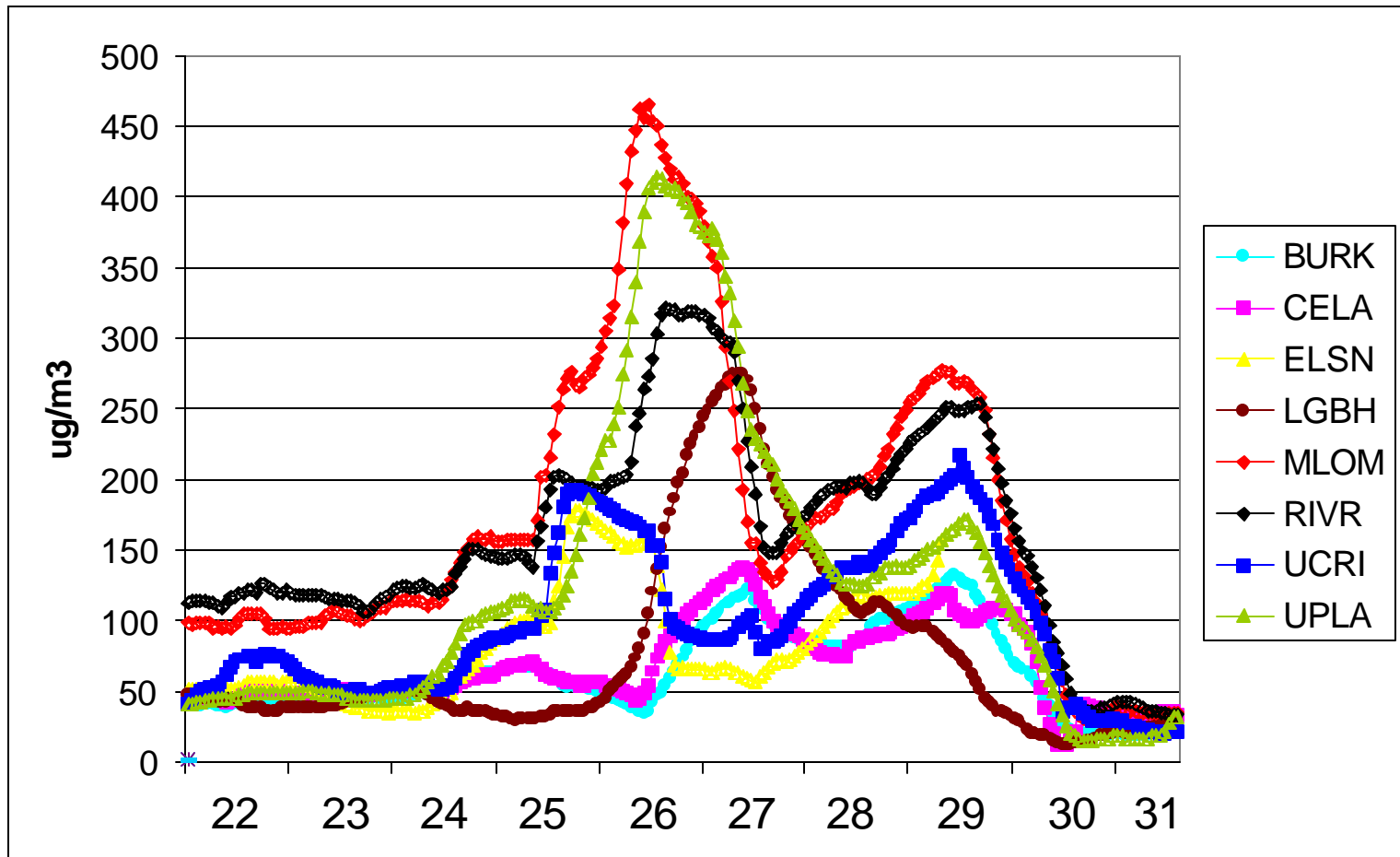
The Grinch that Stole Home Coming



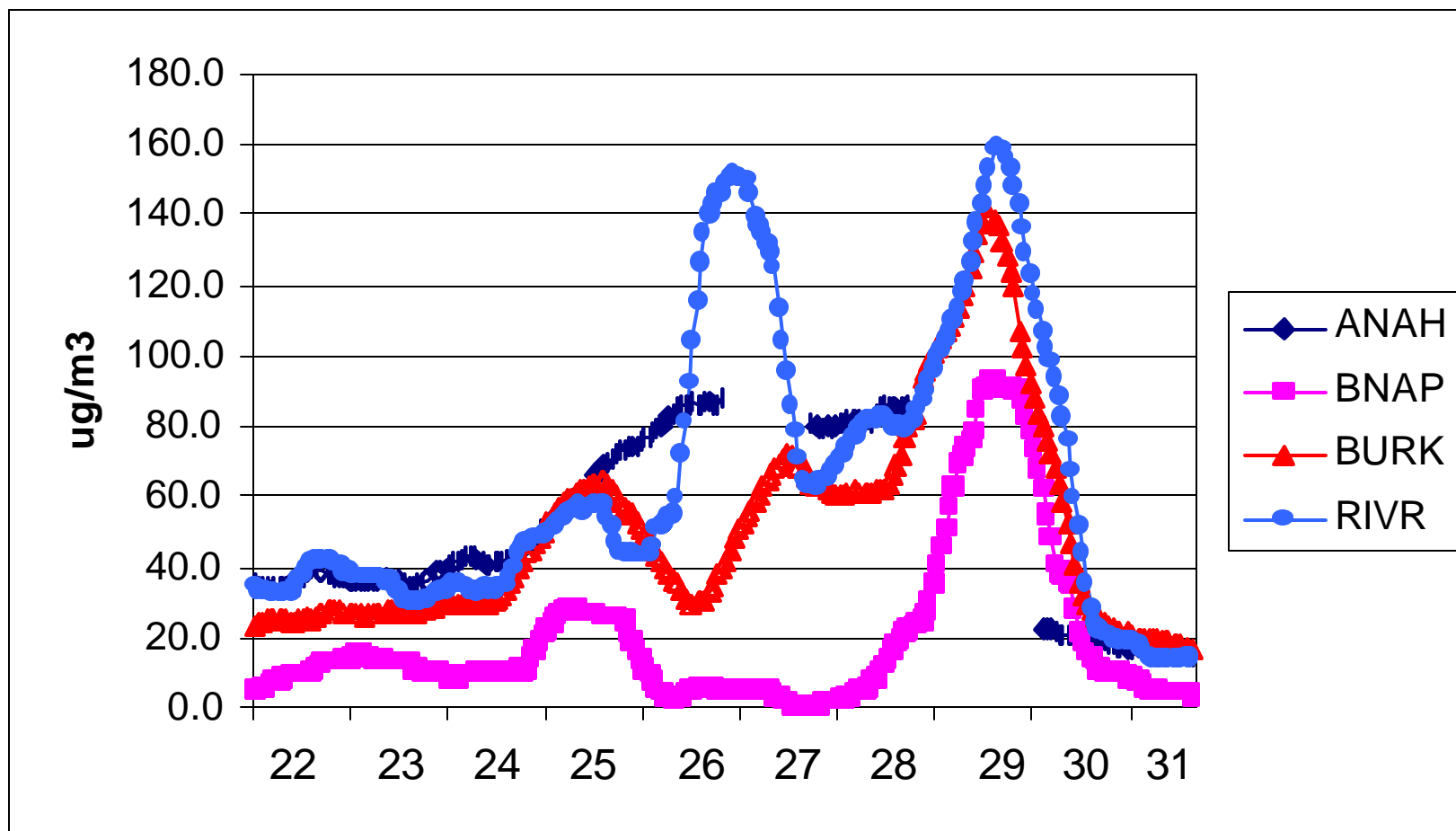
Going With the Flow

- TV, radio, newspapers helped deliver the health message
- Maintained extra communications staffing throughout the weekend and following week
- To address the conflict between PM reporting and non reporting areas issued statement as part of forecast to “*disregard the automated systems until further notice*”

TEOM & BAM 24-Hour Average PM10



BAM 24-Hour Average PM2.5

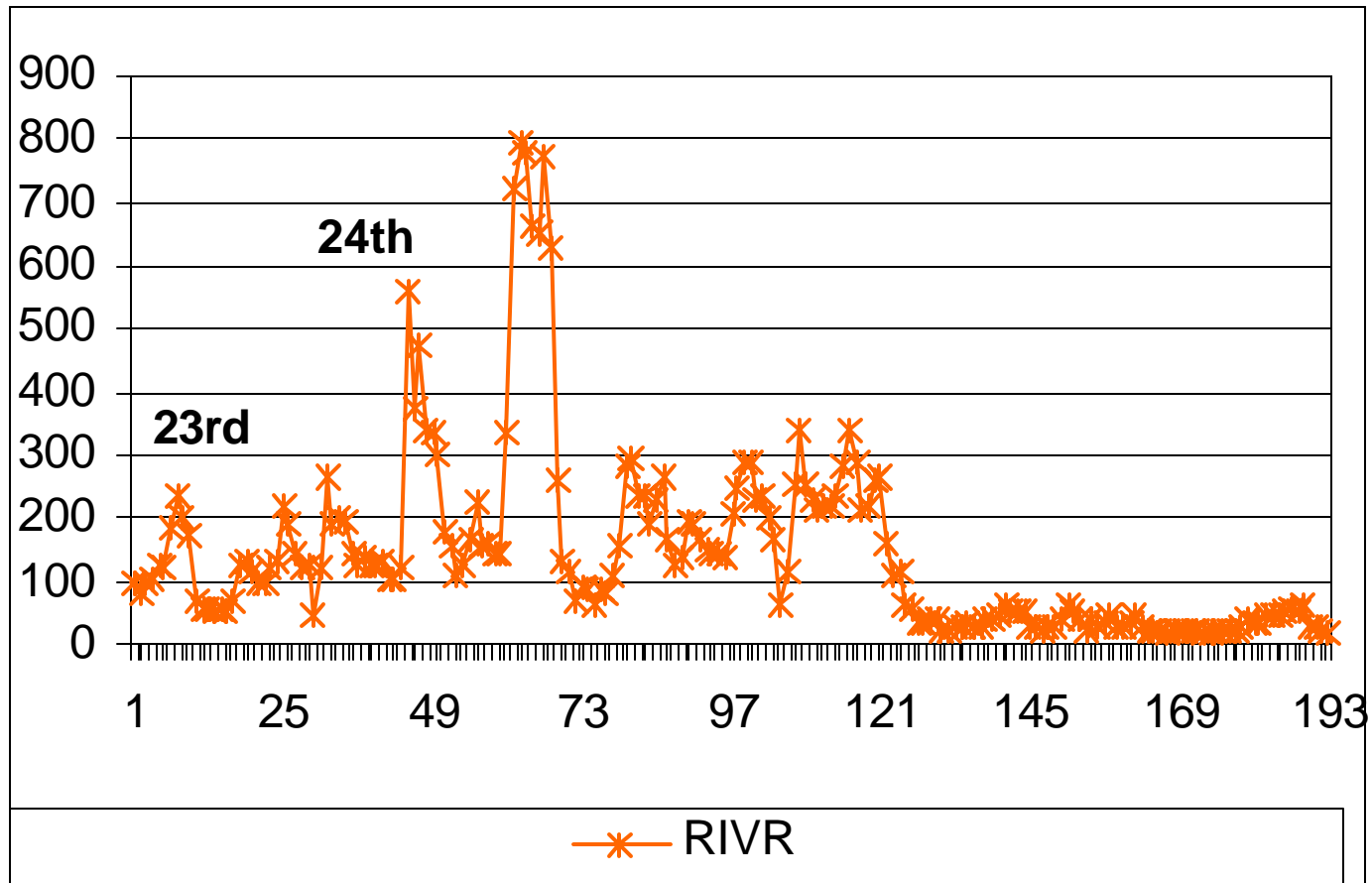


The October Wildfires

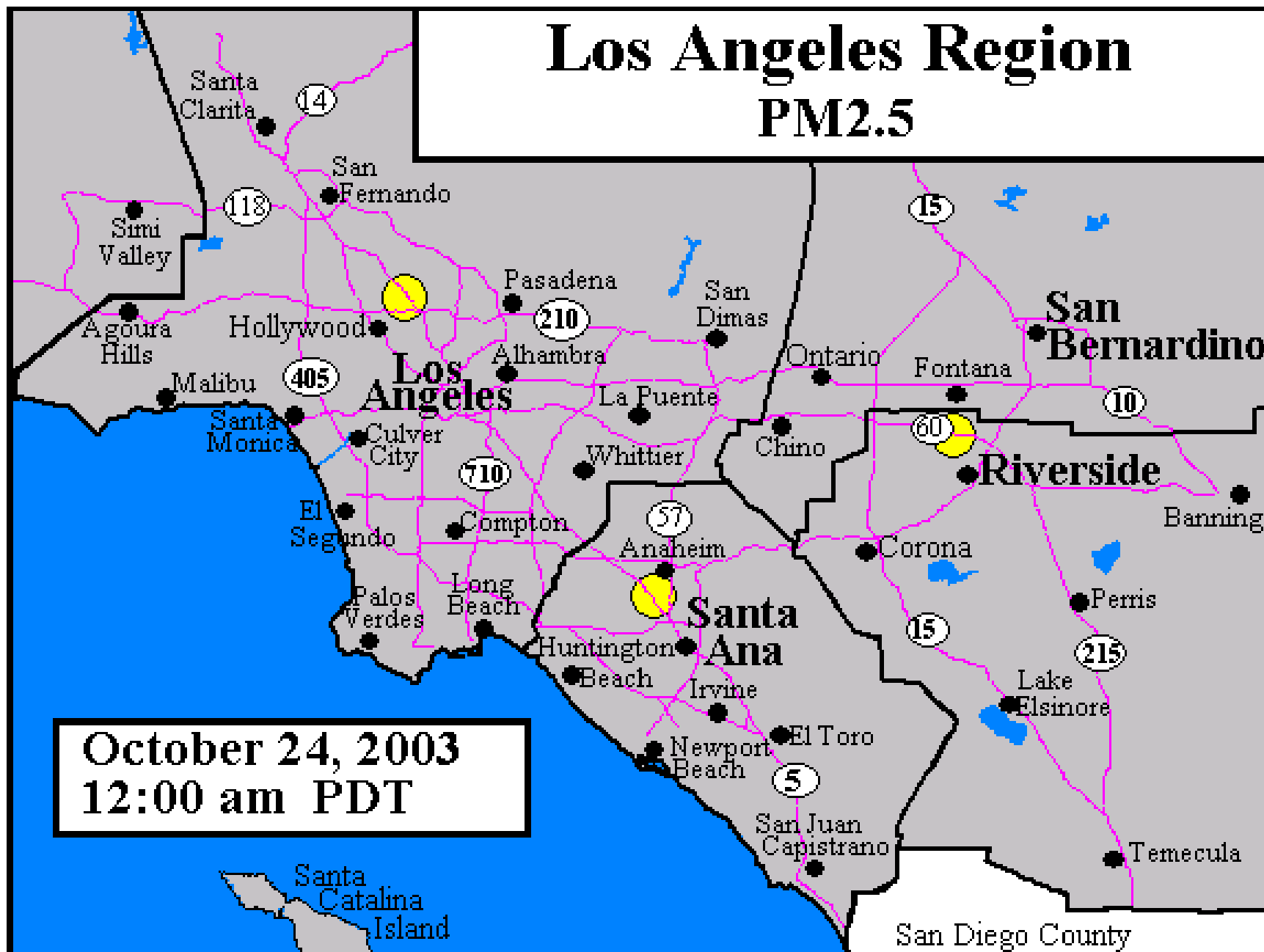
Grand Prix Fire October 23, 2003



PM10 (ug/m3) from the Grand Prix Fire (Oct 23rd, 24th)



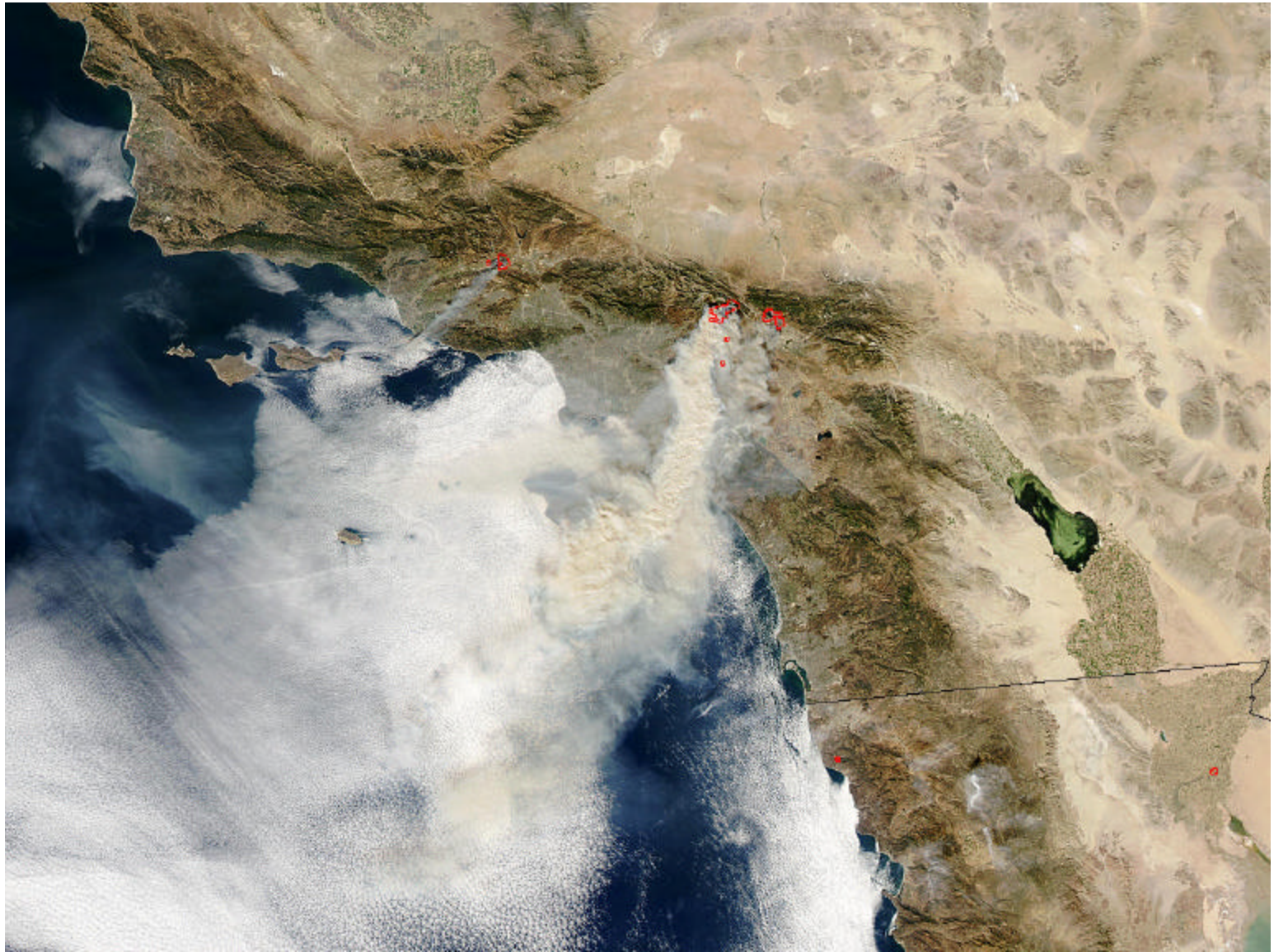
Los Angeles Region PM2.5



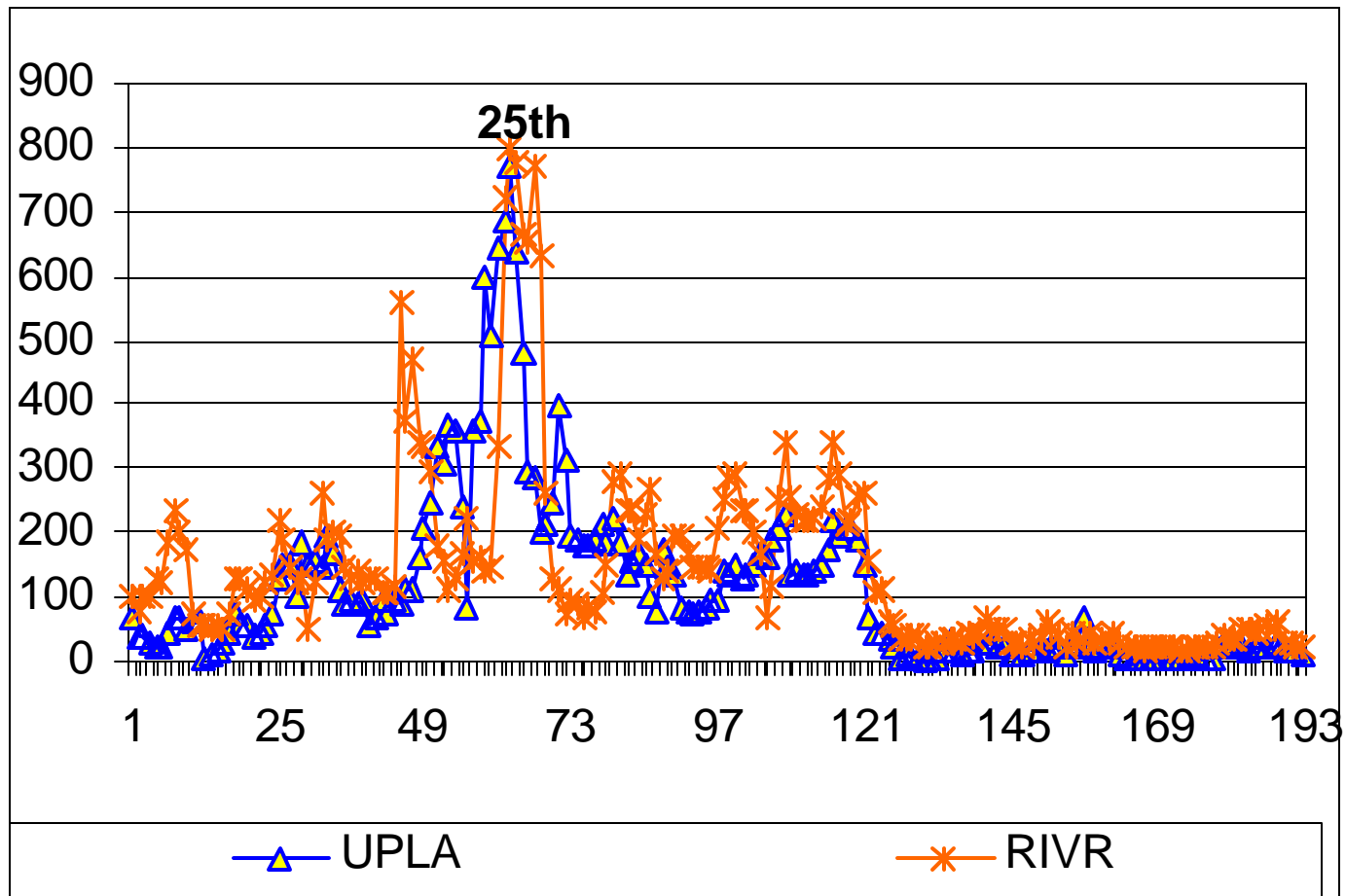
Grand Prix Fire: Sunrise October 25, 2003



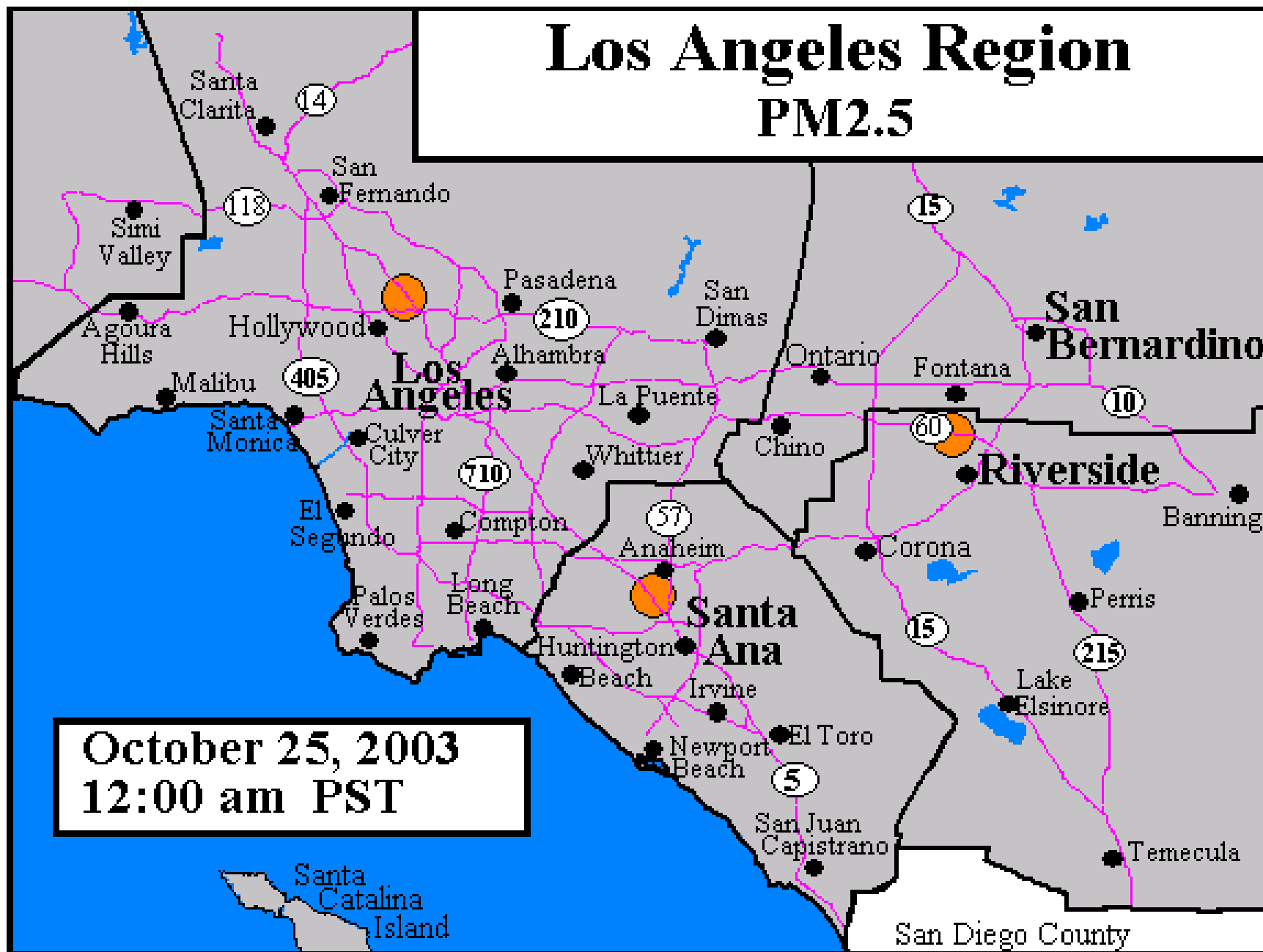
October 25th



PM10 (ug/m3) from the Grand Prix & Old Fires (Oct. 25th)



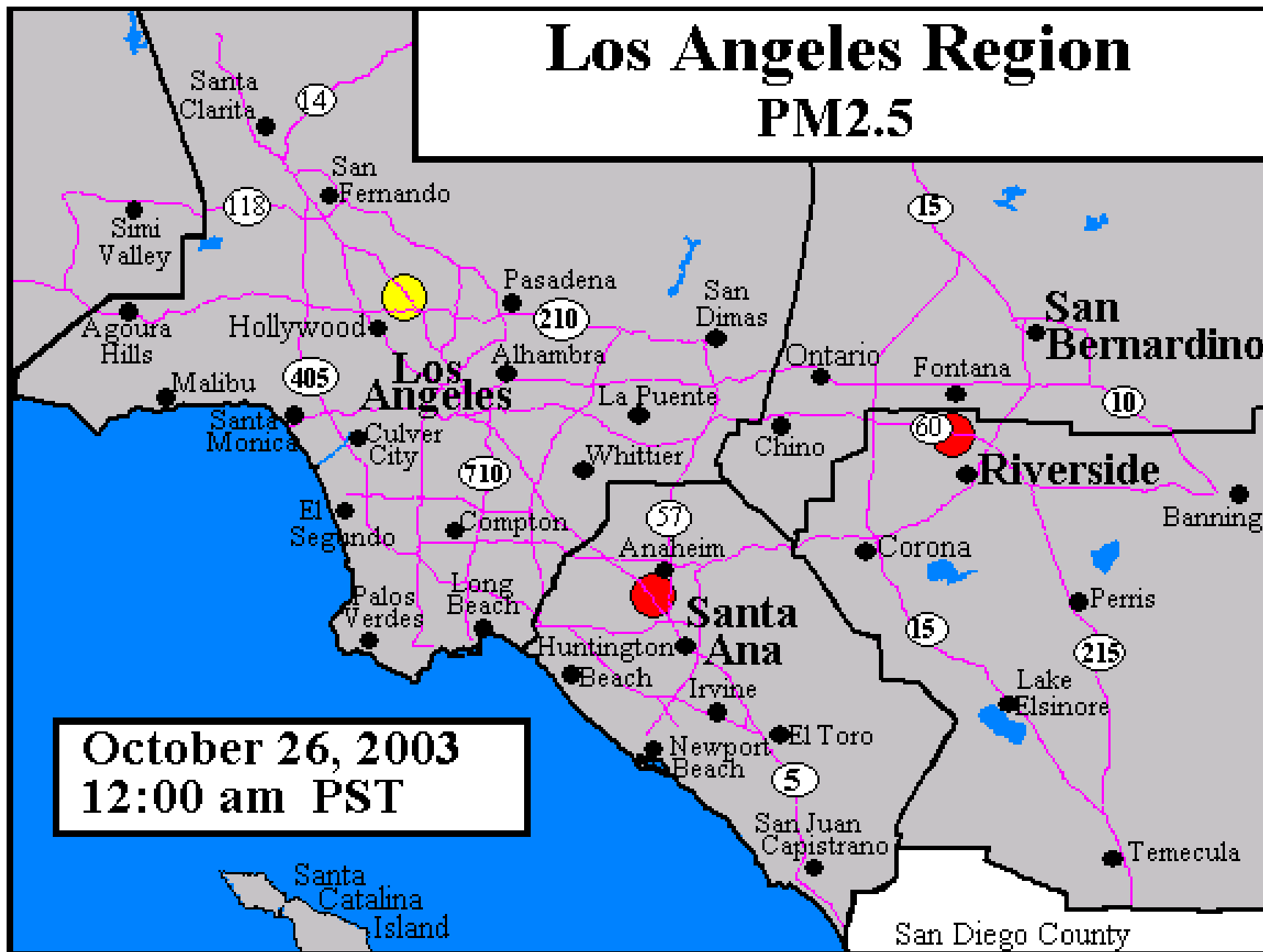
Los Angeles Region PM2.5



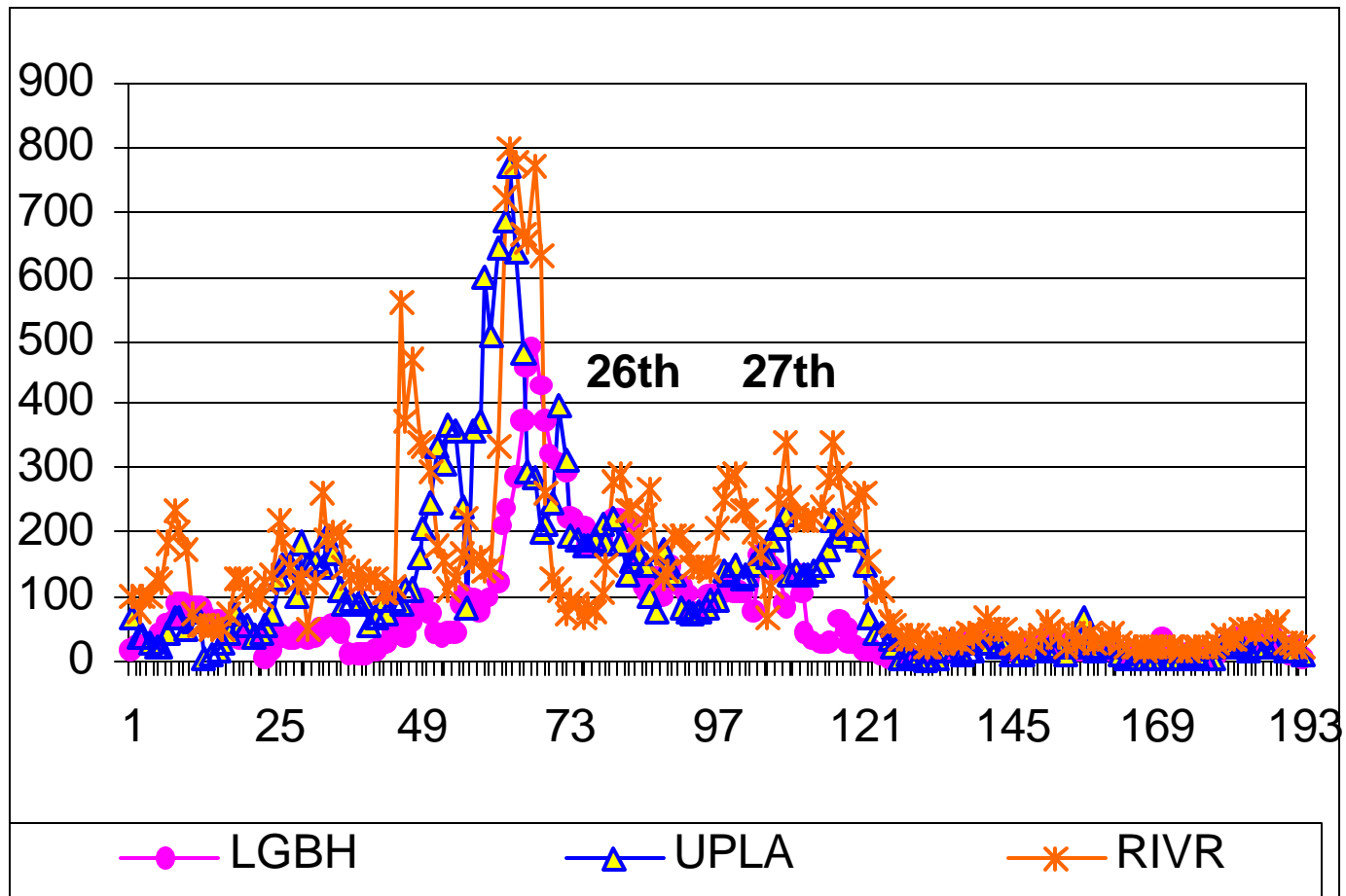
October 26, 2003



Los Angeles Region PM2.5



PM10 (ug/m3) from the Grand Prix and Old Fires (Oct. 26th and 27th)



Old Fire

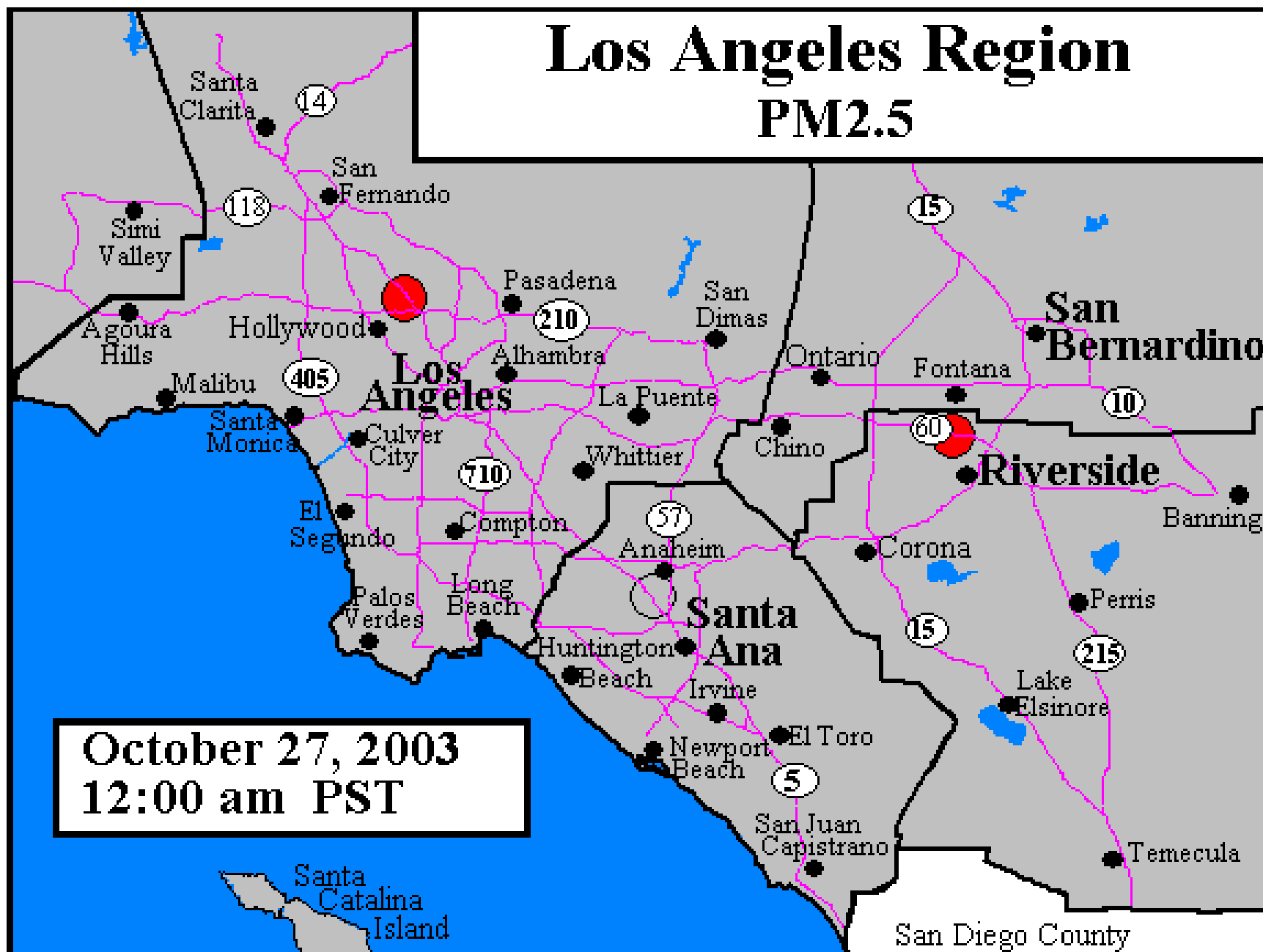


October 27, 2003

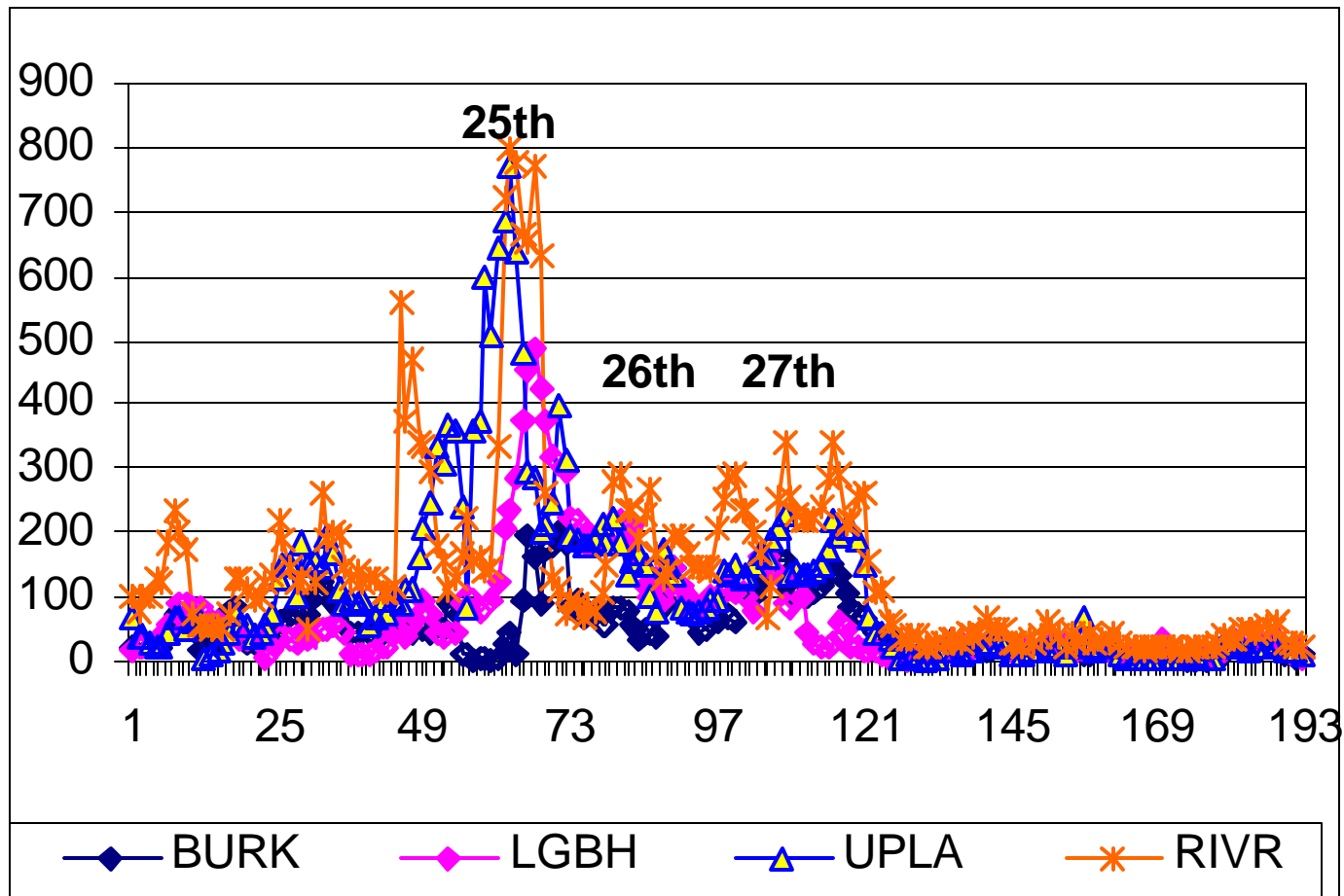




Los Angeles Region PM2.5



PM10 (ug/m3) from the Grand Prix, Old and Simi Fires (Oct. 25th, 26th, 27th)





Ventura
County
firefighters
look at a
twister of
flame from
a wildfire,
Sunday
October
26th, in
Simi Valley

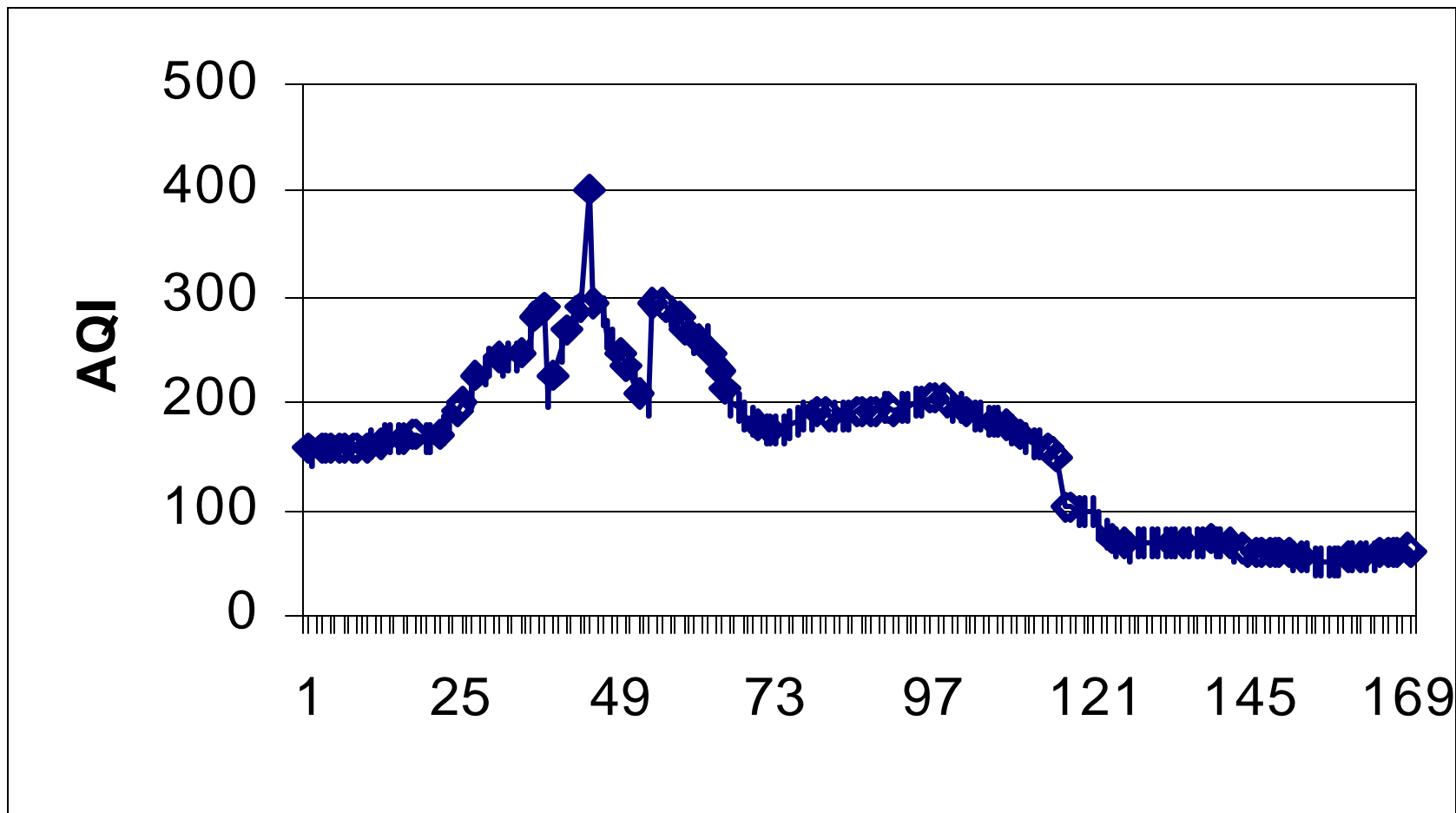
Smoke and AQI

- AQI is more responsive to PM_{2.5}
- 3 - PM_{2.5} sites operated during the fire
- Data from 11- PM₁₀ sites were available
- Average Basin ratio of PM_{2.5} to PM₁₀ is approximately 0.65 (probably higher for smoke from wildfires)
- Used the ratio to estimate PM_{2.5} at PM₁₀ sites and calculated the AQI
- Estimated AQI was communicated to the public, media and supported the forecast

Basin Maximum AQI

PM10 Used to Estimate PM2.5

(Oct. 24th – Oct 30th)



Lessons Learned

- Update all emergency outreach plans and materials distributed to schools and public
 - > air pollution episodes
 - > wildfire smoke
 - > hazardous spills
- Develop expanded real time particulate monitoring
- Investigate use of airport ASOS visibility as surrogate of fine particulate for AQI reporting